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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,558	03/14/2001	Michael M. Becker	GP068-05.CN3	3920

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EXAMINER	
CALAMITA, HEATHER	

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/808,558	BECKER ET AL.	
	Examiner	Art Unit	
	Heather G. Calamita, Ph.D.	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *480-498* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *480-498* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Application, Amendments, and/or Claims

1. Claims 480-498 are under examination. All arguments have been fully considered and thoroughly reviewed, but are deemed not persuasive for the reasons that follow. Any objections and rejections not reiterated below are hereby withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 480-498 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The "wherein" clause renders the claims indefinite. The scope of the claim 480 is unclear because the preamble, drawn to "a probe" conflicts with the "wherein" clause and it is therefore indefinite whether the kit elements are required. Additionally if Applicant intends to make a claim to a kit then Applicant needs to amend the claims to clearly claim a kit.

Claim Interpretation

3. For the purpose of applying art the recitation of "wherein the probe is provided in a kit" is treated as an intended use, as the recitation imposes no structural limitation on the claimed probe.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 480-498 are rejected under 35 U.S.C. 102(b) as being anticipated by Carmo-Fonseca et al. (EMBO, 1991) as evidenced by Iribarren et al. (PNAS 1990).

With regard to claim 480, Carmo-Fonseca et al. teach a probe molecule comprising first and second base regions capable of hybridizing to each other under nucleic acid assay conditions to form a hybrid containng at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety, wherein the probe forms a stable double-stranded complex with the nucleic acid sequence but not with a non-targeted nucleic acid under nucleic acid conditions such that the target nucleic acid sequence can be detected, wherein the complex comprises a single stranded form of the probe (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 481, Carmo-Fonseca et al. teach the first base region contains at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety and the first base region complexes with the target nucleic acid sequence under nucleic acid assay conditions (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 482, Carmo-Fonseca et al. teach the portion of the first base region includes a cluster of at least about 4 ribonucleotides modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claims 483, 485 and 487, Carmo-Fonseca et al. teach the first base region complexes with the target nucleic acid sequence under the nucleic acid assay condition (see p. 1863 col. 2

final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claims 484, Carmo-Fonseca et al. the portion of the first base region capable of froming a hybrid with the second base region under nucleic acid assay conditions includes at least one nucleotide which is not a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 486, Carmo-Fonseca et al. teach each nucleotide of the portion of the first base region capable of forming a hybrid with the second base region under nucleic acid assay conditions is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 488, Carmo-Fonseca et al. teach each nucleotide of the probe is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (p. 1872 col. 2 table 1).

With regard to claim 489, Carmo-Fonseca et al. teach the hybrid formed between the first and second base regions is more stable than a hybrid formed between unmodified forms of the first and second base regions (see p. 1863 col. 2 final paragraph lines 4-8, where it is disclosed the probes hybridize stably and are resistant to nuclease degradation due to the modification).

With regard to claims 490 and 491, Carmo-Fonseca et al. teach the probe includes a conjugate molecule joined to the probe at a site located within the cluster of the first base region (see p. 1872 col. 2 table 1, where the conjugate molecule is the label).

With regard to claim 492, Carmo-Fonseca et al teach the first and second base regions are contained within an oligonucleotide that is between 10 and 100 bases in length (see p. 15 line 30).

With regard to claim 493 and 494, Carmo-Fonseca et al. teach the label comprises a fluorescent molecule (see p. 1872 col. 2 table 1).

With regard to claims 495 and 496, Carmo-Fonseca et al. teach the target nucleic acid comprises RNA and ribosomal RNA (see p. 1863 col. 2 final paragraph lines 4-8).

With regard to claim 497, Agrawal et al. teach a target sequence contained within the target nucleic acid includes a double stranded region (see p. 1863 col. 2 final paragraph lines 4-8, where snRNAs have hairpins which are double stranded regions).

With regard to claim 498, Carmo-Fonseca et al. teach the 2'-O-alkyl substitution to the ribofuranosyl moiety is a 2'-O-methyl substitution (see p. 1863 col. 2 final paragraph lines 4-8, where the probes Iribarren are referenced and Iribarren substituted with 2'-O-methyl).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 480-498 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carmo-Fonseca et al. (EMBO, 1991) as evidenced by Iribarren et al. (PNAS 1990) in view of Tsang (USPN 5,837,442)

With regard to claim 480, Carmo-Fonseca et al. teach a probe molecule comprising first and second base regions capable of hybridizing to each other under nucleic acid assay conditions to form a hybrid containng at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety, wherein the probe forms a stable double-stranded complex with the nucleic acid sequence but not with a non-targeted nucleic acid under nucleic acid conditions such that the target

nucleic acid sequence can be detected, wherein the complex comprises a single stranded form of the probe (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 481, Carmo-Fonseca et al. teach the first base region contains at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety and the first base region complexes with the target nucleic acid sequence under nucleic acid assay conditions (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 482, Carmo-Fonseca et al. teach the portion of the first base region includes a cluster of at least about 4 ribonucleotides modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

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With regard to claims 484, Carmo-Fonseca et al. the portion of the first base region capable of froming a hybrid with the second base region under nucleic acid assay conditions includes at least one nucleotide which is not a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 486, Carmo-Fonseca et al. teach each nucleotide of the portion of the first base region capable of forming a hybrid with the second base region under nucleic acid assay conditions

is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (see p. 1863 col. 2 final paragraph lines 4-8 and p. 1872 col. 2 table 1, where the probes comprise a 2'-O-methyl substitution and form a stable double stranded complex with the target snRNA).

With regard to claim 488, Carmo-Fonseca et al. teach each nucleotide of the probe is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety (p. 1872 col. 2 table 1).

With regard to claim 489, Carmo-Fonseca et al. teach the hybrid formed between the first and second base regions is more stable than a hybrid formed between unmodified forms of the first and second base regions (see p. 1863 col. 2 final paragraph lines 4-8, where it is disclosed the probes hybridize stably and are resistant to nuclease degradation due to the modification).

With regard to claims 490 and 491, Carmo-Fonseca et al. teach the probe includes a conjugate molecule joined to the probe at a site located within the cluster of the first base region (see p. 1872 col. 2 table 1, where the conjugate molecule is the label).

With regard to claim 492, Carmo-Fonseca et al teach the first and second base regions are contained within an oligonucleotide that is between 10 and 100 bases in length (see p. 15 line 30).

With regard to claim 493 and 494, Carmo-Fonseca et al. teach the label comprises a fluorescent molecule (see p. 1872 col. 2 table 1).

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With regard to claim 497, Agrawal et al. teach a target sequence contained within the target nucleic acid includes a double stranded region (see p. 1863 col. 2 final paragraph lines 4-8, where snRNAs have hairpins which are double stranded regions).

With regard to claim 498, Carmo-Fonseca et al. teach the 2'-O-alkyl substitution to the ribofuranosyl moiety is a 2'-O-methyl substitution (see p. 1863 col. 2 final paragraph lines 4-8, where the probes Iribarren are referenced and Iribarren substituted with 2'-O-methyl).

Carmo-Fonseca et al. do not teach kit further comprising a nucleic acid polymerase, nucleotide triphosphates and an amplification oligonucleotide which in the presence of a target nucleic acid analyte and under amplification conditions is extended to form part of a nucleic acid extension product containing the target nucleic acid sequence or directs the synthesis of a nucleic acid transcription product containing the target nucleic acid sequence.

Tsang teaches a kit comprising a nucleic acid polymerase, nucleotide triphosphates and an amplification oligonucleotide which in the presence of a nucleic acid analyte and under amplification conditions is extended to form part of a nucleic acid extension product containing the target nucleic acid sequence or directs the synthesis of a nucleic acid transcription product containing the target nucleic acid sequence (see col. 2 lines 26-31).

One of ordinary at the time the invention was made would have been motivated to incorporate the probe as taught by Carmo-Fonseca into a kit as taught by Tsang in order to detect the presence of a target nucleic acid. Tsang teach the use of the kit for amplification and detection of a target nucleic acid in a sample. It would have been prima facie obvious to incorporate the probe of Carmo-Fonseca into a kit as taught by Tsang in order to detect a specific nucleic acid target using a kit which conveniently combines all of the elements needed for the reaction. Having all of the reagents necessary and available in one kit for detection saves time and money as you do not have to purchase the reagents individually. The kit also provides a means of quality control.

Response to Arguments

6. Applicant's arguments with respect to the 103 rejections have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heather G. Calamita whose telephone number is 571.272.2876 and whose e-mail address is heather.calamita@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route. The examiner can normally be reached on Monday through Thursday, 7:00 AM to 5:30 PM.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Gary Benzion can be reached at 571.272.0782.

Papers related to this application may be faxed to Group 1637 via the PTO Fax Center using the fax number 571.273.8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to 571.272.0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your

questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. For more information about the PAIR system, see http://pair-direct.uspto.gov.

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5/15/06